Towson University

College of Education

**MATH 684.211 Special Topics in Mathematics and Statistics:**

**Teaching Mathematics With Web 2.0**

Class Location: Parkville High School (room 319)

Class Day/Time: Tuesdays, 4:30 – 8:15

Instructor: John SanGiovanni

**Course Description and Overview**

**College of Education Theme/Conceptual Framework:** In keeping with the mission

statement and integrated themes of the College of Education, this course focuses on the educator as a facilitator of active learning. As such, the educator is one who reflects upon and refines best practices, is prepared for diverse and inclusive classrooms, is able to utilize appropriate technology, engages in scholarly activities, has a well-developed professional conscience, and is able to develop professional partnerships.

**National Board of Professional Teaching Standards (NBPTS):** This course is aligned with the five core propositions and the 11 standards of NBPTS. NBPTS seeks to identify and recognize teachers who effectively enhance student learning and demonstrate the high level of knowledge, skills, abilities, and commitments reflected in the core propositions and standards.

This course is designed for educators who are or will be teaching secondary mathematics. The course will focus on current Web 2.0 tools and exemplary practices for using these tools in a secondary mathematics classroom. These tools promote user-centered participation. These tools are web-based and allow users to collaborate and create with other users. Web 2.0 tools of focus include blogs, wikis, podcasts, cloud based applications, social networking, social bookmarking, RSS feeds, and mobile applications. Participants will explore tools and ways to apply them to their mathematics instruction.

**Pre-requisites –** None

**Required Texts**

Selected readings that the instructor may assign to compliment course topics.

**Course Objectives**

Participants will demonstrate the following as a result of readings, lectures, presentation, group activities, and completion of course requirements:

* Develop the understanding and positive attitudes of educators toward the use of Web 2.0 tools in the secondary mathematics classroom (NBPTS Core Propositions 1, 2, 5);
* Develop instructional resources that promote Web 2.0 tools (NBPTS Core Propositions 1, 2, 3)
* Describe Web 2.0 tools and their uses (NBPTS Core Propositions 1, 2, 3) ;
* Design lessons and resources that have Web 2.0 tools embedded in them (NBPTS Core Propositions 2, 3, 4);
* Differentiate content, process, product, and environment using Web 2.0 tools (NBPTS Core Propositions 1, 2, 3);
* Embed technology into daily lesson presentations and products (NBPTS Core Propositions 1, 2, 3) ;
* Create formative and summative assessments that use Web 2.0 tools (NBPTS Core Propositions 1, 2, 3) ; and
* Utilize grading and reporting practices that support learning and encourage learners through Web 2.0 tools (NBPTS Core Propositions 2, 3, 4).

**Course Requirements**

**General Policies** (Note: Important – Please Read Carefully)

* Requirements for the course are designed to allow the participant to demonstrate both personal and professional application of course content. Assignments have been designed to address the participant as an *education scholar, professional educator, and creative innovator.*
* All assigned projects/requirements are due on the dates indicated on the course schedule. Late assignments will not be accepted without prior approval of the instructor.
* Class participants may modify course assignments to better meet their personal and professional goals. However, any variation in the specific nature or criteria of assignments must be discussed with and approved by the instructor prior to submission.
* There are no “recall” tests in this course. Participants in this course are required to complete all reading assignments, demonstrate understanding of the material, and use knowledge from the course content in a reflective manner during class discussions and apply knowledge to course assignments.
* The format of this course includes cooperative groups, online learning, discussion, problem solving, and multimedia presentations. Participants are expected to be prepared to discuss and/or share all assigned readings and/or work on the day they are due. Participants are expected to be willing to share their perspectives, knowledge, and experiences.
* Attendance is an important part of the class. Due to the high degree of participant involvement that will occur in each class session, participants are allowed only one unexcused absence. Repeated absences or tardiness may result in a lower grade for the semester. Please discuss additional absences or tardiness with the instructor.
* All e-mail communication must occur through Towson University’s e-mail. The instructor will not respond unless it is through Towson e-mail.
* The course will utilize various web 2.0 tools. Participants are to create and use one email/account for the development and application of web 2.0 tools.
* The instructor assumes that all participants will be successful in this course. S/he is available for individual conferences with participants during posted office hours, online sessions, or at other times when requested. If participants feel they are having difficulty with the course, need further clarification on assignments, or other assistance, they are encouraged to meet with the instructor as soon as possible.
* At a minimum, participants should be able to work independently in word processing, navigating the Internet, and use of e-mail. Participants will be required to use email and possibly a virtual meeting space for communication when we are not in class. The instructor will deliver course materials, post readings and major assignments, as well as serve as a communication tool between students and instructors. Email is the preferred form of communication and will be checked regularly throughout the day. The instructor cannot guarantee you an immediate answer to your inquiry, s/he will always do her/his best to reply in a timely manner. It is unlikely that a participant will ever have to wait more than a day for a response.
* This course is in compliance with Towson University policies for students with disabilities. Students with disabilities are encouraged to register with Disability Support Services (DSS), 7720 York Road, Room 232, 410-704-2638 (Voice or TDD) <http://www.towson.edu/dss/> . Students who suspect that they have a disability but do not have documentation are encouraged to contact DSS for advice on how to obtain appropriate evaluation. A memo from DSS authorizing your accommodation is needed before any accommodation can be made.
* All participants are expected to adhere to the University’s Student Code of Conduct and Academic Integrity Policy, available online at: <http://www.towson.ed/studentaffairs/policies/conduct.asp> (Code of Conduct), and <http://www.towson.edu/provost/resources/studentacademic.asp> (Academic Integrity Policy).

**Requirement One: Web 2.0 Project………………………………………...……………...15%**

Participants will identify a Web 2.0 tool that can be incorporated into their mathematics instruction. Participants will share an overview of the tool, how the tool works, and how it can be applied to mathematics instruction. Participants will demonstrate an application of the tool to a mathematics concept and/or lesson. Tools will be identified, reviewed, and selected during the first two class meeting dates. Participants will have some time each class to develop this project.

**Requirement Two: Learning Tasks ……………………………………………………….40%**

Each class will focus on current topics in mathematics education as well as Web 2.0 Tools to support mathematics instruction. A learning task will be assigned each class. The learning task will be aligned with the topic and Web 2.0 Tools explored during that class. Typically, learning tasks will be designed to apply to the participant’s classroom instruction. Learning tasks are due each week.

**Requirement Three: Mobile Applications for Mathematics Instruction……...…………20%**

Participants will identify and apply 4 mobile applications that support mathematics instruction. Applications can be intended for student or teacher use. Applications can be designed for Android or iOS systems although applications should be device neutral. Description of application and how it can be applied to mathematics instruction will be included. Participants will present findings to the class.

**Requirement Four: Weekly Class Reflection (online journaling)………….……………..15%**

Each week, a log entry activity applying the topic of study covered in class will be assigned. Following the application of the activity, each participant will post a blog or online journal message. The reflection will be linked to the participant’s or course wiki.

**Requirement Five: Class Attendance, Participation…...…………………………………10%**

Participants are expected to arrive on-time and participate during class. Points will be deducted for late arrival and unexcused absences.

**Evaluation of Course Requirements**

All assignments will be completed with technology. All assignments will be grammatically correct, and should incorporate APA-style references and format when applicable. In general, all assignments will be evaluated on the basis of:

* Accuracy of information presented
* Thoroughness and completeness of work
* Adherence to guidelines and criteria
* Clarity and organization
* Relevance to course content
* Application of course content
* Evidence of creative thinking and originality

Additional criteria may apply, based on the nature of the assignment.

Participants will receive grading criteria of each task prior to assignment.

**Evaluation**:

Individual assignments will be accompanied by specific rubrics/scoring guides. The following is provided as general evaluation guidelines.

**A range**: exceptional, outstanding work, in some ways **exceeding qualitative requirements of the assignment.**

**B range**: High quality work that reflects an effort to meet or exceed all qualitative requirements of the assignment.

In general, A and B range work reflects extensive, highly thoughtful writing and analysis, well connected to philosophy of teaching and learning espoused in this course. This is the expectation for any graduate student.

**C range**: Work that is satisfactory and meets minimum qualitative and quantitative requirements.

**D range**: Work that does not satisfactorily meet the minimum qualitative and quantitative requirements.

In general, C and D range work reflects low quality including a subset of the following: non-compliance with subset of assignment guidelines; repeating or paraphrasing information; stating unsubstantiated facts/concepts with little or no evidence to support ideas; expressing ideas that are disconnected from philosophy of teaching and learning espoused in this course.

**Final Course Grade (100 possible points):**

P = Your total points

**A: P ≥ 90 ; B: 80 ≤ P < 90; C: 70 ≤ P < 80; D: 60 ≤ P < 70; F: P< 6**

**Course Calendar *(Topics subject to change based on the needs of the participants)***

|  |  |  |
| --- | --- | --- |
| **Class** | **Topic** | **Assigned / Due** |
| **Class 1** | **Building Classroom Community**  **What is Web 2.0**  **Identifying Web 2.0 Tools**  **Using Wikis**  **Technology Survey**  **Knowing the Learner** | **A: Learning Task #1** |
| **Class 2** | **The Standards for Mathematical Practices**  **Communicating in Math**  **Writing in Math**  **Blogs, Wordle** | **A: Learning Task #2**  **D: Learning Task #1** |
| **Class 3** | **What Does it Mean To Differentiate?**  **Differentiating Product, Process and Content**  **Differentiation a resource**  **Creating a Glogster or Prezi** | **A: Learning Task #3**  **D: Learning Task #2**  **Mobile App sharing (6)** |
| **Class 4** | **What is the Impact of Technology in the Classroom**  **Independent Research**  **Project Development** | **A: Learning Task #4**  **D: Learning Task #3**  **Mobile App sharing (6)** |
| **Class 5** | **Collaboration Tools – 1**  **Using Google Forms to Collect Data**  **Standards for Mathematical Practice • Collaborating through Google Docs (creating a look for)**  **Google Doc for Project Rubric Creation** | **A: Learning Task #5**  **D: Learning Task #4**  **Mobile App sharing (6)** |
| **Class 6** | **Collaboration and Collecting Data**  **Today’s Meet**  **Poll Everywhere**  **Testmoz**  **Rubistar** | **A: Learning Task #6**  **D: Learning Task #5**  **Mobile App sharing (6)** |
| **Class 7** | **Rich Tasks in Mathematics**  **What is a Rich Task?**  **Using video to create a rich task**  **Creating video to demonstrate understanding** | **A: Learning Task #7**  **D: Learning Task #6**  **Mobile App sharing (6)** |
| **Class 8** | **Rich Tasks Continued**  **Creating video to demonstrate understanding**  **Connecting Ideas through Graphic Organizers**  **Stixy and Wallwisher** | **A: Learning Task #8**  **D: Learning Task #7**  **Mobile App sharing (6)** |
| **Class 9** | **Collaboration through Social Bookmarking**  **Class Dojo**  **Project Sharing** | **D: Learning Task #8**  **Mobile App sharing (6)**  **Web 2.0 Project** |
| **Class 10** | **Collaboration through Social Bookmarking**  **Web 2.0 Project Sharing**  **Course Debrief** | **Mobile App sharing (6)**  **Web 2.0 Project** |

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